Typical 13 cm AM ATV Amateur Station

The typical AM ATV station communicates with other ATV stations and repeaters using LOS modes.

Characteristics	Values
Frequency Band (MHz)	2390-2396, 2418-2430, 2438-2450
Channel Spacing	6 MHz
Information Rate	Fast scan video
Emission Type(s)	visual 5M25C3F Aural 36K0F3E
Transmitter Power (dBW)	10
Transmission Line Loss (dB)	Transmit: 2 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	20
Maximum e.i.r.p. (dBW)	30
Receiver IF Bandwidth	4.2 MHz
Receiver Noise Figure (dB)	1 (mast mounted preamp)
Receiver Thermal Noise (dBW)	-139 (155 kelvin background)
Receiver Signal-to-Noise Ratio (dB)	35 dB (4 dB for marginal contacts)
Maximum Path Length (km)	line of sight

High End 13 cm Beacon Amateur Station

Characteristics	Values
Frequency Band (MHz)	2304.02
Channel Spacing	N/A
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	10
Transmission Line Loss (dB)	Transmit:1
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	10
Maximum e.i.r.p. (dBW)	19
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	1 dB
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background temperature)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	depends on propagation mode

Typical 13 cm Beacon Amateur Station

High gain omnidirectional antennas are often used to maximize the possibility of detecting band openings in different directions.

Characteristics	Values
Frequency Band (MHz)	2304-2305
Channel Spacing	N/A
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	6
Transmission Line Loss (dB)	Transmit:1
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	9
Maximum e.i.r.p. (dBW)	14
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	1 dB
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background temperature)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	depends on propagation mode

9 cm EME Amateur Station on CW --WB5LUA

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	CW: 10 bit/s	
Emission Type(s)	50H0A1A	
Transmitter Power (dBW)	24	
Transmission Line Loss (dB)	Transmit: 2	Receive: 0
Antenna Polarization	Linear; rotatable	
Antenna Maximum Gain (dBi)	43	
Maximum e.i.r.p. (dBW)	65	
Receiver IF Bandwidth	CW: 50 Hz	
Receiver Noise Figure (dB)	0.8	
Receiver Thermal Noise (dBW)	-193 (20 Kelvin background)	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	396,000 one way to moon at nominal apogee	

9 cm EME Amateur Station on SSB

The big EME stations on this band can operate SSB.

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	Speech	
Emission Type(s)	2K50J3E	
Transmitter Power (dBW)	24	
Transmission Line Loss (dB)	Transmit: 2	Receive: 0
Antenna Polarization	Linear; rotatable	
Antenna Maximum Gain (dBi)	43	
Maximum e.i.r.p. (dBW)	65	
Receiver IF Bandwidth	SSB: 2500 Hz	
Receiver Noise Figure (dB)	0.8	
Receiver Thermal Noise (dBW)	-176 (10 Kelvin background)	
Receiver Signal-to-Noise Ratio (dB)	+6	
Maximum Path Length (km)	396,000 one way to moon at nominal apogee	

High-End 9 cm SSB Amateur Station

The typical SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	Speech	
Emission Type(s)	2K50J3E	
Transmitter Power (dBW)	17	
Transmission Line Loss (dB)	Transmit: 3	Receive: 0
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	24	
Maximum e.i.r.p. (dBW)	38	
Receiver IF Bandwidth	SSB:2500 Hz CW:100Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-171 (155 Kelvin background) -185 (CW)	
Receiver Signal-to-Noise Ratio (dB)	+6	
Maximum Path Length (km)	Depends on propagation mode	

Typical 9 cm SSB Amateur Station

The typical SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	Speech	
Emission Type(s)	2K50J3E	
Transmitter Power (dBW)	10	
Transmission Line Loss (dB)	Transmit: 3	Receive: 0
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	24	
Maximum e.i.r.p. (dBW)	31	
Receiver IF Bandwidth	SSB:2500 Hz CW:100Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-171 (155 Kelvin background) -185 (CW)	
Receiver Signal-to-Noise Ratio (dB)	+6	
Maximum Path Length (km)	Depends on propagation mode	

High-End 9 cm CW Amateur Station

The High-End CW amateur station communicates with other stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	10 bit/s	
Emission Type(s)	100HA1A	
Transmitter Power (dBW)	17	
Transmission Line Loss (dB)	Transmit: 3	Receive: 0
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	24	
Maximum e.i.r.p. (dBW)	38	
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background) -171 (SSB)	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	Depends on propgation mode	

Typical 9 cm CW Amateur Station

The typical CW amateur station communicates with other stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	10 bit/s	
Emission Type(s)	100HA1A	
Transmitter Power (dBW)	3	
Transmission Line Loss (dB)	Transmit: 3	Receive: 3
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	24	
Maximum e.i.r.p. (dBW)	24	
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-181 (155 Kelvin background) -167 for SSB	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	Depends on the propagation mode	

Note: CW is often necessary on transmit to extend the range at this power level.

Typical 9 cm Beacon Amateur Station

Characteristics	Values
Frequency Band (MHz)	3300-3500
Channel Spacing	N/A
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	7
Transmission Line Loss (dB)	Transmit:1
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	9
Maximum e.i.r.p. (dBW)	15
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	1 dB
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background temperature)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	depends on propagation mode

6 cm EME Amateur Station on CW --WB5LUA

Characteristics	Values
Frequency Band (MHz)	5650-5925
Channel Spacing	Random
Information Rate	CW: 10 bit/s
Emission Type(s)	50H0A1A
Transmitter Power (dBW)	17
Transmission Line Loss (dB)	Transmit: 2 Receive: 0
Antenna Polarization	Linear; rotatable
Antenna Maximum Gain (dBi)	47
Maximum e.i.r.p. (dBW)	62
Receiver IF Bandwidth	CW: 50 Hz
Receiver Noise Figure (dB)	0.9
Receiver Thermal Noise (dBW)	-189 (120 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	396,000 one way to moon at nominal apogee

High-End 6 cm SSB Amateur Station

The typical SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values
Frequency Band (MHz)	5650-5925
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	2K50J3E
Transmitter Power (dBW)	18
Transmission Line Loss (dB)	Transmit: 3 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	49
Receiver IF Bandwidth	SSB:2500 Hz CW:100Hz
Receiver Noise Figure (dB)	1
Receiver Thermal Noise (dBW)	-171 (155 Kelvin background) -185 (CW)
Receiver Signal-to-Noise Ratio (dB)	+6
Maximum Path Length (km)	Depends on propagation mode

Typical 6 cm SSB Amateur Station

The typical SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values
Frequency Band (MHz)	5650-5925
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	2K50J3E
Transmitter Power (dBW)	10
Transmission Line Loss (dB)	Transmit: 3 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	28
Maximum e.i.r.p. (dBW)	35
Receiver IF Bandwidth	SSB:2500 Hz CW:100Hz
Receiver Noise Figure (dB)	1
Receiver Thermal Noise (dBW)	-171 (155 Kelvin background) -185 (CW)
Receiver Signal-to-Noise Ratio (dB)	+6
Maximum Path Length (km)	Depends on propagation mode

High-End 6 cm CW Amateur Station

The High-End CW amateur station communicates with other stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	3300-3500	
Channel Spacing	Random	
Information Rate	10 bit/s	
Emission Type(s)	100HA1A	
Transmitter Power (dBW)	18	
Transmission Line Loss (dB)	Transmit: 3	Receive: 0
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	34	
Maximum e.i.r.p. (dBW)	49	
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background) -171 (SSB)	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	Depends on propgation mode	

Typical 6 cm CW Amateur Station

The typical CW amateur station communicates with other stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	5650-5925	
Channel Spacing	Random	
Information Rate	10 bit/s	
Emission Type(s)	100HA1A	
Transmitter Power (dBW)	3	
Transmission Line Loss (dB)	Transmit: 3	Receive: 3
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	28	
Maximum e.i.r.p. (dBW)	28	
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-181 (155 Kelvin background) -167 for SSB	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	Depends on the propagation mode	

Note: CW is often necessary on transmit to extend the range at this power level.

Typical 6 cm Beacon Amateur Station

Characteristics	Values
Frequency Band (MHz)	5650-5925
Channel Spacing	N/A
Information Rate	10 bit/s
Emission Type(s)	100HA1A, 100HJ2A
Transmitter Power (dBW)	7
Transmission Line Loss (dB)	Transmit:1
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	9
Maximum e.i.r.p. (dBW)	15
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	1 dB
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background temperature)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	depends on propagation mode

Big 3 cm EME Amateur Station on CW--WA7CJO

Characteristics	Values	
Frequency Band (GHz)	10.0-10.5	
Channel Spacing	Random	
Information Rate	CW: 10 bit/s	
Emission Type(s)	50H0A1A	
Transmitter Power (dBW)	26	
Transmission Line Loss (dB)	Transmit: 1	Receive: 0
Antenna Polarization	Linear; rotatable	
Antenna Maximum Gain (dBi)	51	
Maximum e.i.r.p. (dBW)	76	
Receiver IF Bandwidth	CW: 400 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-177 (260 Kelvin background)	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	396,000 one way to moon at nominal apogee	

Note: EME is tougher on this band due to the wobbling and noise of the moon, which increases the receiver bandwidth and increases the background temperature.

Typical 3 cm EME Amateur Station

The typical EME model is capable of CW communication with other EME stations.

Characteristics	Values	
Frequency Band (MHz)	10,000-10,500	
Channel Spacing	Random	
Information Rate	CW: 10 bit/s	
Emission Type(s)	50H0A1A	
Transmitter Power (dBW)	15	
Transmission Line Loss (dB)	Transmit: 1	Receive: 0
Antenna Polarization	Linear; rotatable	
Antenna Maximum Gain (dBi)	48.5	
Maximum e.i.r.p. (dBW)	61.5	
Receiver IF Bandwidth	CW: 400 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-178 (230 Kelvin background)	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	396,000 one way to moon at nominal apogee	

High End 3 cm SSB Amateur Station

The high-end SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	10,000-10,500	
Channel Spacing	Random	
Information Rate	Speech	
Emission Type(s)	2K50J3E	
Transmitter Power (dBW)	14	
Transmission Line Loss (dB)	Transmit: 1	Receive: 0
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	40	
Maximum e.i.r.p. (dBW)	53	
Receiver IF Bandwidth	SSB:2500 Hz CW:100 Hz	
Receiver Noise Figure (dB)	1	
Receiver Thermal Noise (dBW)	-171 (155 Kelvin background) -185 (CW)	
Receiver Signal-to-Noise Ratio (dB)	+6	
Maximum Path Length (km)	Depends on propagation mode	

Typical 3 cm SSB Amateur Station

The typical SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	2K50J3E
Transmitter Power (dBW)	6
Transmission Line Loss (dB)	Transmit: 1 Receive: 1
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	39
Receiver IF Bandwidth	SSB:2500 Hz CW:100Hz
Receiver Noise Figure (dB)	2
Receiver Thermal Noise (dBW)	-168 (155 Kelvin background) -182 (CW)
Receiver Signal-to-Noise Ratio (dB)	+6
Maximum Path Length (km)	Depends on propagation mode

High-End 3 cm CW Amateur Station

The High-End CW amateur station communicates with other stations using troposcatter.

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	Random
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	14
Transmission Line Loss (dB)	Transmit: 1 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	40
Maximum e.i.r.p. (dBW)	53
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz
Receiver Noise Figure (dB)	1
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background) -171 (SSB)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	Depends on propgation mode

Typical 3 cm CW Amateur Station

The typical CW amateur station communicates with other stations using troposcatter.

Characteristics	Values
Frequency Band (MHz)	2300-2310
Channel Spacing	Random
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	1
Transmission Line Loss (dB)	Transmit: 1 Receive: 1
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	34
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz
Receiver Noise Figure (dB)	2
Receiver Thermal Noise (dBW)	-182 (155 Kelvin background) -168 for SSB
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	*Depends on the propagation mode*

Note: CW is often necessary on transmit to extend the range at this power level.

Typical 3 cm SSB Satellite Amateur Station

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	2K50J3E
Transmitter Power (dBW)	
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	RHCP
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	
Receiver IF Bandwidth	2500 Hz
Receiver Noise Figure (dB)	1
Receiver Thermal Noise (dBW)	-175 (10 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	+6
Maximum Path Length (km)	45,000km

Typical 3 cm CW Satellite Amateur Station

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	Random
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	
Transmission Line Loss (dB)	Transmit: 0 Receive:0
Antenna Polarization	RHCP, Horizontal, or Vertical
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	1
Receiver Thermal Noise (dBW)	-189
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	45,000km

Typical 3 cm Repeater Amateur Station

TheWB6IGP repeater is 10 MHz wide and linear.

Characteristics	Values
Frequency Band (MHz)	10363-10373
Channel Spacing	
Information Rate	
Emission Type(s)	SSB, CW, NBFM, ATV
Transmitter Power (dBW)	0
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	13
Maximum e.i.r.p. (dBW)	13
Receiver IF Bandwidth	10 MHz
Receiver Noise Figure (dB)	2
Receiver Thermal Noise (dBW)	
Receiver Signal-to-Noise Ratio (dB)	
Maximum Path Length (km)	Depends on propagation mode

Typical 3 cm WBFM Amateur Station

The typical FM voice station can communicate with other FM voice amateur stations.

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	200K0F3E
Transmitter Power (dBW)	-20
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Vertical
Antenna Maximum Gain (dBi)	17
Maximum e.i.r.p. (dBW)	-3
Receiver IF Bandwidth	200kHz
Receiver Noise Figure (dB)	12
Receiver Thermal Noise (dBW)	-139 (155 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	+10
Maximum Path Length (km)	Depends on propagation mode

Typical 3 cm AM ATV Amateur Station

The typical AM ATV station communicates with other ATV stations and repeaters using LOS modes.

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	6 MHz
Information Rate	Fast scan video
Emission Type(s)	visual 5M25C3F Aural 36K0F3E
Transmitter Power (dBW)	0
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	34
Receiver IF Bandwidth	4.2 MHz
Receiver Noise Figure (dB)	1 (mast mounted preamp)
Receiver Thermal Noise (dBW)	-139 (155 kelvin background)
Receiver Signal-to-Noise Ratio (dB)	35 dB (4 dB for marginal contacts)
Maximum Path Length (km)	line of sight

Typical 3 cm Packet Amateur Station

Packet stations are typically used for point to point links on this band.

Characteristics	Values
Frequency Band (MHz)	10000-10500
Channel Spacing	random
Information Rate	2Mb/s
Emission Type(s)	2M5F3E
Transmitter Power (dBW)	-20
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	14
Receiver IF Bandwidth	2.5 MHz
Receiver Noise Figure (dB)	12 dB
Receiver Thermal Noise (dBW)	-128
Receiver Signal-to-Noise Ratio (dB)	15
Maximum Path Length (km)	line of sight

Typical 3 cm Beacon Amateur Station

High gain omnidirectional antennas are often used to maximize the possibility of detecting band openings in different directions.

Characteristics	Values
Frequency Band (MHz)	10,000-10,500
Channel Spacing	N/A
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	1
Transmission Line Loss (dB)	Transmit:0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	13
Maximum e.i.r.p. (dBW)	13
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	1 dB
Receiver Thermal Noise (dBW)	-185 (155 Kelvin background temperature)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	depends on propagation mode

High End 1.2 cm SSB Amateur Station

The high-end SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	24,000-24,250	
Channel Spacing	Random	
Information Rate	Speech	
Emission Type(s)	2K50J3E	
Transmitter Power (dBW)	-10	
Transmission Line Loss (dB)	Transmit: 0.5	Receive: 0.5
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	40	
Maximum e.i.r.p. (dBW)	29.5	
Receiver IF Bandwidth	SSB:2500 Hz CW:100 Hz	
Receiver Noise Figure (dB)	4	
Receiver Thermal Noise (dBW)	-165 (290 Kelvin background) -179 (CW)	
Receiver Signal-to-Noise Ratio (dB)	+6	
Maximum Path Length (km)	Depends on propagation mode	

Typical 1.2 cm SSB Amateur Station

The typical SSB amateur station communicates with other SSB/CW stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	24,000-24,250	
Channel Spacing	Random	
Information Rate	Speech	
Emission Type(s)	2K50J3E	
Transmitter Power (dBW)	-33	
Transmission Line Loss (dB)	Transmit: 0.5	Receive: 0.5
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	34	
Maximum e.i.r.p. (dBW)	0.5	
Receiver IF Bandwidth	SSB:2500 Hz CW:100Hz	
Receiver Noise Figure (dB)	12	
Receiver Thermal Noise (dBW)	-157 (290 Kelvin background) -171 (CW)	
Receiver Signal-to-Noise Ratio (dB)	+6	
Maximum Path Length (km)	Depends on propagation mode	

High-End 1.2 cm CW Amateur Station

The High-End CW amateur station communicates with other stations using troposcatter.

Characteristics	Values	
Frequency Band (MHz)	24,000-24,250	
Channel Spacing	Random	
Information Rate	10 bit/s	
Emission Type(s)	100HA1A	
Transmitter Power (dBW)	-10	
Transmission Line Loss (dB)	Transmit: 1	Receive: 0
Antenna Polarization	Horizontal	
Antenna Maximum Gain (dBi)	40	
Maximum e.i.r.p. (dBW)	29.5	
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz	
Receiver Noise Figure (dB)	4	
Receiver Thermal Noise (dBW)	-179 (290 Kelvin background) -165 (SSB)	
Receiver Signal-to-Noise Ratio (dB)	+1	
Maximum Path Length (km)	Depends on propgation mode	

Typical 1.2 cm CW Amateur Station

The typical CW amateur station communicates with other stations using troposcatter.

Characteristics	Values
Frequency Band (MHz)	24,000-24.250
Channel Spacing	Random
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	-33
Transmission Line Loss (dB)	Transmit: 0.5 Receive: 0.5
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	34
Maximum e.i.r.p. (dBW)	0.5
Receiver IF Bandwidth	CW:100Hz SSB:2500 Hz
Receiver Noise Figure (dB)	12
Receiver Thermal Noise (dBW)	-171 (290 Kelvin background) -157 for SSB
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	Depends on the propagation mode

Note: CW is often necessary on transmit to extend the range at this power level.

Typical 1.2 cm SSB Satellite Amateur Station

Characteristics	Values
Frequency Band (MHz)	24,000-24,050
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	2K50J3E
Transmitter Power (dBW)	
Transmission Line Loss (dB)	Receive: 0.5
Antenna Polarization	RHCP
Antenna Maximum Gain (dBi)	40
Maximum e.i.r.p. (dBW)	
Receiver IF Bandwidth	2500 Hz
Receiver Noise Figure (dB)	4
Receiver Thermal Noise (dBW)	-167 (30 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	+6
Maximum Path Length (km)	45,000km

Typical 1.2 cm CW Satellite Amateur Station

Characteristics	Values
Frequency Band (MHz)	24,000-24.050
Channel Spacing	Random
Information Rate	10 bit/s
Emission Type(s)	100HA1A
Transmitter Power (dBW)	
Transmission Line Loss (dB)	Receive:0.5
Antenna Polarization	RHCP, Horizontal, or Vertical
Antenna Maximum Gain (dBi)	40
Maximum e.i.r.p. (dBW)	
Receiver IF Bandwidth	100 Hz
Receiver Noise Figure (dB)	4
Receiver Thermal Noise (dBW)	-181 (30 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	+1
Maximum Path Length (km)	45,000km

Typical 1.2 cm WBFM Amateur Station

The typical FM voice station can communicate with other FM voice amateur stations.

Characteristics	Values
Frequency Band (MHz)	24,000-24,250
Channel Spacing	Random
Information Rate	Speech
Emission Type(s)	200K0F3E
Transmitter Power (dBW)	-13
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Vertical
Antenna Maximum Gain (dBi)	40
Maximum e.i.r.p. (dBW)	27
Receiver IF Bandwidth	200kHz
Receiver Noise Figure (dB)	12
Receiver Thermal Noise (dBW)	-138 (290 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	+10
Maximum Path Length (km)	Depends on propagation mode

Typical 1.2 cm AM ATV Amateur Station

The typical AM ATV station communicates with other ATV stations and repeaters using LOS modes.

Characteristics	Values
Frequency Band (MHz)	24,000-24,250
Channel Spacing	6 MHz
Information Rate	Fast scan video
Emission Type(s)	visual 5M25C3F Aural 36K0F3E
Transmitter Power (dBW)	-13
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	40
Maximum e.i.r.p. (dBW)	27
Receiver IF Bandwidth	4.2 MHz
Receiver Noise Figure (dB)	12
Receiver Thermal Noise (dBW)	-124 (290 kelvin background)
Receiver Signal-to-Noise Ratio (dB)	35 dB (4 dB for marginal contacts)
Maximum Path Length (km)	line of sight

Typical 1.2 cm Packet Amateur Station

Packet stations are typically used for point to point links on this band.

Characteristics	Values
Frequency Band (MHz)	24,000-24,250
Channel Spacing	random
Information Rate	2Mb/s
Emission Type(s)	2M5F3E
Transmitter Power (dBW)	-20
Transmission Line Loss (dB)	Transmit: 0 Receive: 0
Antenna Polarization	Horizontal
Antenna Maximum Gain (dBi)	40
Maximum e.i.r.p. (dBW)	20
Receiver IF Bandwidth	2.5 MHz
Receiver Noise Figure (dB)	12 dB
Receiver Thermal Noise (dBW)	-127 (290 Kelvin background)
Receiver Signal-to-Noise Ratio (dB)	15
Maximum Path Length (km)	line of sight